

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

1. (currently amended): A magnetic recording medium comprising:

provided on a nonmagnetic substrate; and

at least three layers formed on the nonmagnetic substrate and comprised of with at least an orientation-controlling layer for controlling orientation of a layer formed directly thereon, a perpendicularly perpendicular magnetic layer having an easily magnetizing axis oriented mainly perpendicularly relative to the nonmagnetic substrate, and a protective layer;

said medium being characterized in that said perpendicularly perpendicular magnetic layer comprising comprises two or more magnetic layers, that at least one of said magnetic layers is a lower layer having Co as a main component, and containing Pt as well and containing an oxide and that at least another of said magnetic layers is a an upper layer having Co as a main component and containing Cr as well and containing and no oxide;

said lower magnetic layer containing the oxide comprises magnetic crystal grains dispersed in the lower layer and said crystal grains vertically penetrate said lower layer in columnar forms; and

said upper layer comprises magnetic crystal grains that are formed and epitaxially grown on the magnetic crystal grains of the lower layer on an upper surface of said lower layer.

2. (canceled).

3. (currently amended): A magnetic recording medium according to claim 1-~~or claim 2~~, wherein said oxide is an oxide of at least one nonmagnetic metal selected from among Cr, Si, Ta, At and Ti.

4. (currently amended): A magnetic recording medium according to ~~any one of claims 1 to 3~~claim 1, wherein said oxide is Cr₂O₃ or SiO₂.

5. (currently amended): A magnetic recording medium according to ~~any one of claims 1 to 4~~claim 1, wherein said magnetic layer containing the oxide has an oxide content of 3 mol % or more and 12 mol % or less.

6. (currently amended): A magnetic recording medium according to ~~any one of claims 1 to 5~~claim 1, wherein said magnetic layer containing the oxide has Co as a main component and has a Cr content of 0 at % or more and 16 at % or less and a Pt content of 10 at % or more and 25 at % or less.

7. (currently amended): A magnetic recording medium according to ~~any one of claims 1 to 6~~claim 1, wherein said magnetic layer containing the oxide contains at least one

element selected from the group consisting of B, Ta, Mo, Cu, Nd, W, Nb, Sm, Tb, Ru and Re and has a total content of said at least one element that is 8 at % or less.

8. (currently amended): A magnetic recording medium according to ~~any one of claims 1 to 7~~claim 1, wherein said magnetic layer containing no oxide has Co as a main component and has a Cr content of 14 at % or more and 30 at % or less.

9. (currently amended): A magnetic recording medium according to ~~any one of claims 1 to 8~~claim 1, wherein the magnetic layer containing no oxide has Co as a main component and has a Cr content of 14 at % or more and 30 at % or less and a Pt content of 8 at % or more and 20 at % or less.

10. (currently amended): A magnetic recording medium according to ~~any one of claims 1 to 9~~claim 1, wherein said magnetic layer containing no oxide contains at least one element selected from the group consisting of B, Ta, Mo, Cu, Nd, W, Nb, Sm, Tb, Ru and Re and has a total content of said at least one element that is 8 at % or less.

11. (canceled).

12. (currently amended): A magnetic recording medium according to ~~any one of claims 1 to 11~~claim 1, wherein said ~~perpendicularly-perpendicular~~ magnetic layer contains two or more oxide-containing layers.

13. (currently amended): A magnetic recording medium according to any one of claims 1 to 12claim 1, wherein said perpendicularly-perpendicular magnetic layer contains two or more layers containing no oxide.

14. to 17. (canceled).

18. (currently amended): A method for the production of a magnetic recording medium comprisingprovided on a nonmagnetic substrate and at least three layers formed on the nonmagnetic substrate and comprised ofwith at least an orientation-controlling layer for controlling orientation of a layer formed directly thereon, a perpendicularly-perpendicular magnetic layer having an easily magnetizing axis oriented mainly perpendicularly relative to the nonmagnetic substrate, and a protective layer,

said method comprisingbeing characterized by

forming said perpendicularly-perpendicular magnetic layer of two or more magnetic layers, wherein at least one of said two or more magnetic layers is a lower layer having Co as a main component, and containing Pt as well and containing an oxide and at least another of said two or more magnetic layers is a an upper layer having Co as a main component, and containing Cr as well and containing no oxide;

forming said lower magnetic layer with magnetic crystal grains dispersed in the lower layer and vertically penetrating the lower layer in columnar forms;

forming said upper layer by forming and epitaxially growing magnetic crystal grains on
the magnetic crystal grains of the lower layer on an upper surface of the lower layer.

19 and 20. (canceled).

21. (currently amended): A method according to any one of claims 18 to 20claim 18,
wherein said perpendicularly perpendicular magnetic layer contains two or more oxide-
containing layers.

22. (currently amended): A method according to any one of claims 18 to 21claim 18,
wherein said perpendicularly perpendicular magnetic layer contains two or more layers
containing no oxide.

23.-24. (canceled).

25. (currently amended): A method according to any one of claims 18 to 24claim 18,
wherein said perpendicularly perpendicular magnetic layer is formed using a film-forming gas to
which an oxygen gas is added.

26. (currently amended): A magnetic recording and reproducing apparatus furnished
with a magnetic recording medium and a magnetic head for recording and reproducing
information in said magnetic recording medium, said apparatus being characterized in that said
magnetic recording medium is the magnetic recording medium set forth in any one of claims 1 to
47claim 1.